

CLAIMS

We Claim:

5 1. A method of determining whether an insulin resistant patient is a responder to a therapeutic treatment for insulin resistance, comprising the steps of:

Measuring the amount of HMW adiponectin and the amount of total adiponectin or LMW adiponectin in the patient's plasma or serum;

10 Commencing said therapeutic treatment; and

Measuring the amount of HMW adiponectin and the amount of total adiponectin or LMW adiponectin in said patient's plasma or serum one or more times after the commencement of said therapeutic treatment,

wherein said patient is determined to be a responder to said therapeutic treatment if the ratio of the amount of HMW adiponectin to the amount of total adiponectin or LMW adiponectin increases after said therapeutic treatment commences.

20 2. The method of Claim 1, wherein said therapeutic treatment comprises the administration of an effective amount of one or more insulin sensitizing pharmaceuticals.

25 3. The method of Claim 2, wherein said patient is determined to be a responder to said therapeutic treatment if the ratio of the amount of HMW adiponectin to the amount of total adiponectin or LMW adiponectin increases by at least 20% after said therapeutic treatment commences.

30 4. The method of Claim 2, wherein said patient is determined to be a responder to said therapeutic treatment if the ratio of the amount of HMW adiponectin to the amount of total adiponectin or LMW adiponectin increases by at least 25% after said therapeutic treatment commences.

35 5. The method of Claim 2, wherein said patient is determined to be a responder to said therapeutic treatment if the ratio of the amount of HMW adiponectin to the amount of total

adiponectin or LMW adiponectin increases by at least 30% after said therapeutic treatment commences.

6. The method of Claim 2, wherein said patient is determined to be a responder to
5 said therapeutic treatment if the ratio of the amount of HMW adiponectin to the amount of total
adiponectin or LMW adiponectin increases by at least 40% after said therapeutic treatment
commences.

7. The method of Claim 2, wherein said patient is determined to be a responder to
10 said therapeutic treatment if the ratio of the amount of HMW adiponectin to the amount of total
adiponectin or LMW adiponectin increases by at least 50% after said therapeutic treatment
commences.

8. The method of Claim 2, wherein said patient is determined to be a responder to
15 said therapeutic treatment if the ratio of the amount of HMW adiponectin to the amount of total
adiponectin or LMW adiponectin increases by at least 75% after said therapeutic treatment
commences.

9. The method of Claim 2, wherein said insulin sensitizing pharmaceuticals are
20 selected from the group consisting of PPAR-gamma agonists, PPAR-gamma partial agonists,
and PPAR alpha-gamma dual agonists.

10. The method of Claim 2, wherein said insulin sensitizing pharmaceutical has a
TZD group in its structure.
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11. The method of Claim 2, wherein said insulin sensitizing pharmaceutical is
selected from the group consisting of pioglitazone, rosiglitazone, MCC-555, balaglitazone,
isaglitazone, netagliptazone, KRP-297 (MK-0767), farglitazar, tesagliptazar (AZ-242), and
muragliptazar (BMS-298585).
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12. The method of Claim 2, wherein the amount of HMW adiponectin and the amount
of total adiponectin or LMW adiponectin in said patient's plasma or serum is measured before
the commencement of said therapeutic treatment and is measured one or more times after the
commencement of said therapeutic treatment.
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13. The method of Claim 2, wherein the amount of HMW adiponectin and the amount of total adiponectin in said patient's plasma or serum is measured before the commencement of said therapeutic treatment and is measured one or more times after the commencement of said therapeutic treatment, wherein said patient is determined to be a responder to said therapeutic treatment if the ratio of the amount of HMW adiponectin to the amount of total adiponectin in said patient's plasma or serum increases by at least 20% after the commencement of said therapeutic treatment.

14. The method of Claim 13, wherein said patient is determined to be a responder to said therapeutic treatment if the ratio of the amount of HMW adiponectin to the amount of total adiponectin in said patient's plasma or serum increases by at least 25% after the commencement of said therapeutic treatment.

15. The method of Claim 13, wherein said patient is determined to be a responder to said therapeutic treatment if the ratio of the amount of HMW adiponectin to the amount of total adiponectin in said patient's plasma or serum increases by at least 30% after the commencement of said therapeutic treatment.

16. The method of Claim 13, wherein said patient is determined to be a responder to said therapeutic treatment if the ratio of the amount of HMW adiponectin to the amount of total adiponectin in said patient's plasma or serum increases by at least 40% after the commencement of said therapeutic treatment.

17. The method of Claim 13, wherein said patient is determined to be a responder to said therapeutic treatment if the ratio of the amount of HMW adiponectin to the amount of total adiponectin in said patient's plasma or serum increases by at least 50% after the commencement of said therapeutic treatment.

18. The method of Claim 13, wherein said patient is determined to be a responder to said therapeutic treatment if the ratio of the amount of HMW adiponectin to the amount of total adiponectin in said patient's plasma or serum increases by at least 75% after the commencement of said therapeutic treatment.

19. The method of Claim 13, wherein said patient is determined to be a responder to said therapeutic treatment if the ratio of the amount of HMW adiponectin to the amount of total

adiponectin in said patient's plasma or serum increases by at least 20% within four weeks after said therapeutic treatment commences.

20. The method of Claim 19, wherein said patient is determined to be a responder to
5 said therapeutic treatment if the ratio of the amount of HMW adiponectin to the amount of total
adiponectin in said patient's plasma or serum increases by at least 20% within two weeks after
said therapeutic treatment commences.

21. The method of Claim 19, wherein said patient is determined to be a responder to
10 said therapeutic treatment if the ratio of the amount of HMW adiponectin to the amount of total
adiponectin in said patient's plasma or serum increases by at least 20% within one week after
said therapeutic treatment commences.

22. A method of predicting whether a therapeutic treatment for insulin resistance will
15 be effective in ameliorating one or more diseases associated with insulin resistance in a patient in
need of treatment for said disease or diseases, comprising the steps of:

Measuring the amount of HMW adiponectin and the amount of total adiponectin
in said patient's plasma or serum;

20 Commencing said therapeutic treatment; and

Measuring the amount of HMW adiponectin and the amount of total adiponectin
in said patient's plasma or serum one or more times after the commencement of said therapeutic
25 treatment;

wherein said therapeutic treatment comprises the administration of an effective
amount of one or more insulin sensitizing pharmaceuticals,

30 wherein said therapeutic treatment is predicted to be effective in ameliorating said
one or more diseases in said patient if the ratio of the amount of HMW adiponectin to the
amount of total adiponectin increases by at least 20% within four weeks after said therapeutic
treatment commences.

23. A method of predicting whether a therapeutic treatment for insulin resistance will be effective in ameliorating one or more diseases associated with insulin resistance in a patient in need of treatment for said disease or diseases in accordance with Claim 22, wherein said disease is selected from the group consisting of Type 2 diabetes, obesity, hypertension, and
5 dyslipidemia.

24. The method of Claim 22, wherein said method is used to predict whether a therapeutic treatment for insulin resistance will be effective in ameliorating hyperglycemia or dyslipidemia in a type 2 diabetic patient.
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25. The method of Claim 22, wherein said method is used to predict whether a therapeutic treatment for insulin resistance will be effective in reducing the risk that a non-diabetic patient having impaired glucose tolerance or elevated fasting plasma glucose will develop type 2 diabetes.
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26. The method of Claim 22, wherein said method is used to predict whether a therapeutic treatment for insulin resistance will be effective in ameliorating three or more symptoms of the metabolic syndrome as defined by Adult Treatment Panel III in JAMA, Jan 16, 2002, Vol. 287, No. 3, pp 356–359, said symptoms being selected from the group consisting of abdominal obesity, hypertriglyceridemia, low HDL, high blood pressure, and elevated fasting glucose.
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27. The method of Claim 22, wherein said method is used to predict whether a therapeutic treatment for insulin resistance will be effective in ameliorating three or more symptoms of the metabolic syndrome as defined by WHO.
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28. The method of any one of Claims 24, 25, 26, or 27, wherein said therapeutic treatment is predicted to be effective in said patient if the ratio of the amount of HMW adiponectin to the amount of total adiponectin in said patient's plasma or serum increases by at least 20% within four weeks after said therapeutic treatment commences.
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29. The method of any one of Claims 24, 25, 26, or 27, wherein said therapeutic treatment is predicted to be effective in said patient if the ratio of the amount of HMW adiponectin to the amount of total adiponectin in said patient's plasma or serum increases by at least 25% within four weeks after said therapeutic treatment commences.
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30. The method of any one of Claims 24, 25, 26, or 27, wherein said therapeutic treatment is predicted to be effective in said patient if the ratio of the amount of HMW adiponectin to the amount of total adiponectin in said patient's plasma or serum increases by at least 30% within four weeks after said therapeutic treatment commences.

31. The method of any one of Claims 24, 25, 26, or 27, wherein said therapeutic treatment is predicted to be effective in said patient if the ratio of the amount of HMW adiponectin to the amount of total adiponectin in said patient's plasma or serum increases by at least 40% within four weeks after said therapeutic treatment commences.

32. The method of any one of Claims 24, 25, 26, or 27, wherein said therapeutic treatment is predicted to be effective in said patient if the ratio of the amount of HMW adiponectin to the amount of total adiponectin in said patient's plasma or serum increases by at least 50% within four weeks after said therapeutic treatment commences.

33. The method of any one of Claims 24, 25, 26, or 27, wherein said therapeutic treatment is predicted to be effective in said patient if the ratio of the amount of HMW adiponectin to the amount of total adiponectin in said patient's plasma or serum increases by at least 75% within four weeks after said therapeutic treatment commences.